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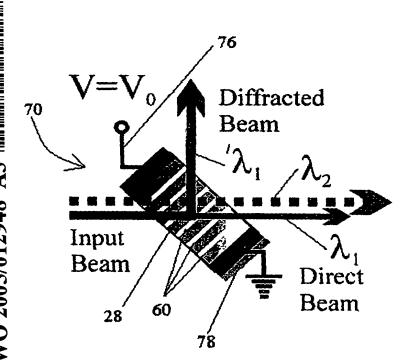
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(54) Title: STABLE DIELECTRIC GRATINGS IMPLEMENTED BY COMPOSITION STRIATIONS IN PARAELECTRIC **CRYSTALS** 



(57) Abstract: Methods for permanently introducing patterns in electro-optic crystals are provided, by forming patterned variations in the composition of the electro-optic crystals (28), during the crystal growth process. These methods open a way to a family of light-controlling devices that can operate at temperatures as high as 80 degrees centigrade, and may be stored at temperatures as high as 300 degrees centigrade. Additionally, they may withstand radiation of natural light and cosmic ray. In accordance with one embodiment, an electrically (76) controlled Bragg grating is introduced into a crystal, by a permanent periodic spatial variation (60) of its composition, forming permanent periodic striations. The periodic striations induce a spatial modulation of the dielectric constant, and the application of a uniform electric field produces an induced polarization grating.

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